

CODIB-D-82/27
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UNITED STATES INTELLIGENCE BOARD
COMMITTEE ON DOCUMENTATION

Revised Draft CODIB Report on
Stage I of the Staff for the Community
Information Processing Study

Attached for review and action at the next CODIB meeting is the
third draft of the CODIB report to USIB on the SCIPS Study.

[Redacted Signature Box]

Secretary

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Attachment

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Stage I Report of the Staff for the Community Information
Processing Study (SCIPS)

REFERENCES: (a) USIB-D-39.7/1, 24 July 1961
(b) USIB-D-39.7/3, 23 February 1962
(c) USIB-M-202, 23 February 1962

1. This is a report on Stage I of the Community Information Processing Study which was undertaken by CODIB pursuant to USIB direction contained in Reference (c). The original terms of reference were set forth in Reference (a) and modified and reduced in scope in Reference (b), which constitutes the Stage I plan for this study, completion of which is now reported.
2. The SCIPS report deals with "information processing" in a restricted sense. Information processing, as used in the SCIPS Stage I Report and in this report, includes only those activities sequentially following initial or field acquisition and preceding intelligence analysis, except that language translation and photo interpretation activities are included. Thus the term as used by SCIPS is primarily concerned with receipt, dissemination, indexing, storage and retrieval ~~restricted to the dissemination and reference service functions.~~
3. The directive to the Staff called essentially for doing four things:
 - a. To inventory intelligence information holdings;

S-E-C-R-E-T

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S-E-C-R-E-T

- 2 -

- b. To measure the flow of information between intelligence activities;
- c. To recommend format and indexing specifications, particularly as required by automated systems;
- d. To recommend what further study should be made in the information processing area (defined as the portion of the intelligence cycle between the collection of information and the production of intelligence therefrom).

4. The SCIPS Report does include an inventory of intelligence information holdings (or files) in a large part of the Intelligence Community; and it identifies and has measured the flow of information between the many components surveyed. The study effort did not yield the hoped-for specifications, because automated systems generally have not been implemented or in some cases even developed to a level where input requirements are determinable. Recommendations are made concerning what to do next.

5. Our plan of presentation in this paper is first, to comment on the study effort itself, since this is necessary to an understanding of what the Report is or is not; second, to summarize the major SCIPS findings with COMB comment thereon, giving cross-references to the relevant portions of the SCIPS Report; third, to present some additional COMB observations; fourth, to present our own (i.e., COMB's) recommendations for USB action.

S-E-C-R-E-T

- 3 -

COMMENTS ON THE STUDY EFFORT

6. The SCIPS Report consists of six volumes and its sheer bulk and various classifications preclude its submission as a single unit. Volume I, which contains the Summary, Conclusions, and Recommendations as well as a Table of Contents for all volumes, is attached hereto as Tab A. The remaining volumes are being forwarded separately to the USIB member agencies. A selection of 17 of 103 charts from the body of the report is also attached as Tab B. [To minimize possible misinterpretation of the charts, they should be studied together with the text of Volume II, of which they are a part.]

7. In spite of the necessary curtailment of the scope of the survey as originally conceived, the results represent the most comprehensive fact-finding study of this kind that has yet been undertaken in the Intelligence Community, covering perhaps one half of the Community's information processing activities. The extensive data base that has been created will continue for some time to yield information of considerable value to the individual participating agencies as well as to the community as a whole. This data base consists of the Stage I Report itself and, in addition, exhibits, survey forms, punched cards, magnetic tape files, tally sheets, and machine listings. The machined portion contains statistical information on the kinds and quantities of people, equipment, files, processes, documents and document movement in the Intelligence Community.

S-E-C-R-E-T

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- 6 -

The following served in this capacity:

Mr. Willard R. Fazar, Bureau of the Budget

Dr. John H. Kennedy, Weapons Systems Evaluation Group

25X1

In addition, Dr. William O. Baker, Vice President (Research), Bell Laboratories, and a member of the President's Foreign Intelligence Advisory Board, spent a day at SCIPS headquarters while the panel was in session. The report of the panel has been considered by CODIB in reaching its conclusions and is attached as Tab C for information.

11. The members of CODIB, members of the SCIPS Staff, and others spent two days [redacted] for the purpose of reviewing the report and its findings. The group was unanimous in concluding that the SCIPS Staff, and in particular its director, [redacted] should be commended for a useful job well done.

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12. A word should be said about the factual data reported and the conclusions reached by SCIPS. In the main, the information may be considered one year old, though it varies in age from 8 to 24 months. However, since processing procedures change more slowly than organizations or subject interests, it is believed that these data will remain valid and useful for some time even if not updated. It should further be noted that not all conclusions reached by SCIPS were derived directly from the factual data alone. Some conclusions were reached as

S-E-C-R-E-T

- 7 -

a result of the broad experience acquired by the Staff during their long and intensive exposure to the survey's environment, supplemented by a high degree of expertise in this field that some of them already possessed. Conclusions so reached may be no less valid or valuable, but the reader should know that judgment as well as fact played parts in their formulation. Unfortunately ~~some of~~ Those conclusions which seem less valid or even, in our judgment, invalid if based on the data accumulated will be noted in the CODIB comments. The This mixture of subjective invalid conclusions with a somewhat alarmist presentation perhaps sometimes overdrawn for purposes of emphasis, presents a picture of the intelligence community which is distorted and which must be carefully examined if misinterpretation and or unsound ill-grounded action are to be avoided.

13. One further note. The study consists, virtually, of a picture of considerable size of files and flows. By its terms of reference it did not study the analyst - the user of these files and the recipient of these flows. Hence, some of the dynamics of the situation are missing. We know a good deal about what goes on, but little about why. Moreover, the study deals primarily with the flow of document, not of information; and careful consideration must be given any recommended action to insure that its impact would not impair the flow of ~~be deleterious to~~ information. flows.

S-E-C-R-E-T

- 8 -

SELECTED FINDINGS AND CONCLUSIONS OF THE SCIPS EFFORT

14. The SCIPS effort was, first of all, a pioneering venture to determine whether such a comprehensive and complex investigation was in fact feasible. It was launched with few precedents for guidance and carried out on the basis of curtailed terms of reference and with limited manpower. Nevertheless, the first conclusion of this report, and perhaps the most significant one, is that the SCIPS effort has indeed demonstrated that such a study is feasible. It has succeeded in developing a highly useful methodology for gathering, collating and evaluating a great mass of valuable data on information processing for the use of management at various levels of the community.

15. The "findings" which are contained in Volumes II and VI of the SCIPS Report, and summarized in Volume I, attached hereto, constitute the main product of this survey. Given below, in very abbreviated form, is a selection of some of the major broad findings and conclusions of the report as well as a few selected problems which hold promise for special study.

Selected Findings

a. Systems

- (1) The present USIB "systems" are strongly oriented to method of collection of information. There is, however, an apparent absence of an effective information correlation capability

S-E-C-R-E-T

- 9 -

across sources (human observation, photography, SIGINT, etc.).

(See Section I, A, 1, Vol. I)

CODIB Comment: This finding of SCIPS does not appear to be justified by the collected facts. SCIPS actually found very little duplication in processing activities. In this statement this lack of duplication is referred to as lack of "cross-correlation" capability. Since the information flow between analysts was not studied, the lack of effective cross-correlation in the community cannot be established. The intent here, we gather, is to indicate that existing retrieval systems are not sufficiently all-source oriented to ensure that all information relevant to a given request but originating either from sensitive compartmented sources or sources whose products are indexed by different techniques is made available by a request to files. With this we agree. There is information flow between analysts which was outside the scope of the study and which can be quite effective even though often fortuitous rather than controlled.

- (2) Because of the number, size, organization and orientation of existing files, it may often be more expeditious to reacquire a specific item of information from the field than to determine that it has already been acquired, where it has been filed, and to retrieve it therefrom. (See Section I, A, 1, Vol. I)

CODIB Comment: This is, in part, based on SCIPS judgment, finding is one of the generally alarmist statements in the report and is not supported except indirectly by the collected data. Controls do exist to assist in reducing unnecessary collection and to attempt to insure that information sought isn't already on file; their effectiveness was beyond the scope of the study. CODIB agrees that the situation described in this "finding" has existed until recently, and probably does exist today, particularly between agencies and between different source systems. The controls that do exist are not representative

S-E-C-R-E-T

- 10 -

of the Community picture in a broad sense and, since SCIPS data indicates that less than half of the existing files are formatted, no real check for existing information can be made. In fact, there is considerable evidence that the implication is not true:

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thus it is inconceivable that more than a fraction of a per cent of collection is directed toward obtaining information which is already available. This fraction of a per cent does not constitute an economic reason for the increased central reference and management costs, which would be required to eliminate it.

- (3) The information holdings of the community generally appear to be deficient in their capability to make available the results of individual analysis of reports or items of information.

There is not sufficient motivation for analyst input (feedback) into the data base nor is such input facilitated. (See Section I, B, 7, b, Vol. I)

CODIB Comment: This problem certainly exists but positive steps are being taken attempted in some agencies to overcome the problem; it is true that such feedback has not been obtained on an organized basis in the past. In particular, the BoD Collection Evaluation System is directed toward providing this kind of feedback. It must be remembered, however, that the SCIPS conclusion relates only to central files; analysts' conclusions are maintained in thousands of files by analysts in the organizations surveyed or in finished intelligence which is not indexed in depth. Such conclusions in file could be are usually separate, identifiable entries and are, theoretically, retrievable; we would agree that such feedback should be a part of information systems design.

S-E-C-R-E-T

- 11 -

D. Information Control

- (1) The present system fails to exercise significant content control coding early enough in the processing cycle to permit effective filter operations and thus to prevent the movement of large quantities of redundant information throughout the successive processing levels of the community. (See Section I, A, 2, Vol. I)

CODIB Comment: This finding, although probably true, does not rise directly from the data gathered. Since the SCIPS analysis covered, essentially, only document flows, not information, the degree of redundancy cannot be determined except that the reproduction and distribution of unexploited reconnaissance film reels reflects the problem. This problem deserves study in its own right, but great careful distinction between corroboration and redundancy would be required; to eliminate only "redundancy" not corroboration, the possibility of attempting this distinction at the publication point rather than in an analytical environment is not clear. The logic of attempting to stem the paper flood somehow, is clear.

- (2) There is a proliferation of copies of items of information at all levels for local use, and for lateral and onward distribution with or without analysis. Because of the tendency for the source identification to become progressively obscured during the processing cycle, the consumer may receive both raw and processed information without knowing that they both emanate from the same original source. (See Section I, A, 2, Vol. I)

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- 13 -

everything they are quite not unsuccessful; the actual data shows that there is little no one agency gets everything and that duplication and none is identified as underinformed. of input to files is not as extensive as intuitively thought. No factual basis for comment on the undesirability of that overlap does exist can be made from the SCIPS data. No one should expect analysts to consider all available information; omniscience is unachievable. (See GEDIB findings.)

However, with the increasing developmental efforts involving EDP equipment, with large storage capacities and rapid data manipulation, and with geographic separation (without secure remote query capability) from other agencies' files, it probably is true that more is acquired than is necessary to support departmental missions. Definite efforts are underway, consistent with established USB policy, to obtain existing machine language files by DIA, State, CIA and NSA. Whether in the long run such duplication is good or bad -- what or more service of common concern allocation should be made -- is a matter to be decided (see Recommendation #5). Finally, since someone must be held accountable for the finished intelligence product, the analyst is held accountable for checking on all existing information, even though perhaps he should not be inasmuch as omniscience is not achievable. We are agreed that it is both desirable and possible through our retrieval systems to better organize, across sources, information relevant to an analysts needs. When this is done, the analyst can feel more sure of his access to more relevant information than is now the case.

- (2) On the other hand, the study of item-flow in the community does not support the view that all or most elements are now getting everything, whatever their intent; on the contrary, the danger exists that items are missed by those who should have them. (See Section I, E, 5, Vol. I)

S-E-C-R-E-T

S-E-C-R-E-T

- 14 -

CODIB Comment: This danger is inevitable. See CODIB Recommendations 3 and 4 for ameliorative action.

d. Indexing and Item Identification

There does not exist at present a single set of indexing tools which will fill a majority of the community's needs.

(See Section I, B, 2, Vol. I)

CODIB Comment: Concur.

e. Report Formatting

Survey results on the status of report formatting requirements for automatic input were essentially negative. The present state-of-the-art in Information Processing does not permit automatic input except to a very limited degree and the present systems are generally not developed to a level where requirements for such inputs are determinable. (See Section I, B, 3, Vol. I)

CODIB Comment: The statement made above that automatic input is beyond the state-of-the-art is for the most part true but has been overtaken somewhat, and in limited areas, by events; Successful systems are now in operation with automatic input; specifically, systems for automatic input processing of air movements reports and shipping intelligence have been demonstrably effective. The development of the World Wide Military Command and Control System can be expected to lend further impetus to the development of formatting requirements. It is certainly true that there remain several thousand series for which report formatting requirements have not been developed.

S-E-C-R-E-T

S-E-C-R-E-T

- 15 -

f. Systems Integration

The most pressing problems of systems integration or interface appear to be between components within agencies rather than between agencies. (See Section I, B, 4, Vol. I)

CODIB Comment: This statement is probably true and deserves careful consideration. This is not to say that information processing does not warrant Community consideration to a considerably greater degree than it has had to date -- it does; but this finding does reflect a logical first-things-first philosophy. (See Recommendation 6.d.)

g. The State-of-the-Art

A state-of-the-art survey was not made in Stage I. However, many computer applications were observed and the SCIPS data base itself constituted an actual application from which valuable experience was obtained. The report raises doubts whether the present general-purpose computers will ever solve the bulk information processing problems of the substantive intelligence community and yet points out that the use of ADP remains one of the few hopes for real progress. The present computers are generally successful when used for highly structured and circumscribed processing of specific problems but may not offer much promise as a base upon which to build

S-E-C-R-E-T

S-E-C-R-E-T

- 16 -

an entire information processing system. (See Section I, B, 4 and 7 and Section II, A, Vol. I).

CODIB Comment: U. S. intelligence elements must learn to walk before they run. Miniaturization techniques are demonstrating considerable utility in intelligence information processing. The "promise" of ADP should not be underestimated any more

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Major Conclusions

h. Content Control Coding

In order to improve our ability to deliver potentially significant information in forms useful for exploitation and to allocate limited exploitation resources, there are needed immediate system-wide adjustments leading to sufficient information content control coding to provide for adequate cross-source correlation. Content control coding must be applied at a point where items of information are being put into comprehensible report form but before great numbers of copies have been released. This means that this control and filtering must be introduced at an early stage in processing and must apply to information obtained from all forms of intelligence collection. Such a uniform system of shallow

S-E-C-R-E-T

- 17 -

content control coding, applied early enough in the processing cycle would permit identification and elimination of redundant reporting and thus provide more specific information support than is supplied by the present dissemination system. (See Sections I, A, 1 and 2 and I, B, 1 and 2, Volume I)

i. Standard Item Identification System

There is need for instituting a standard method for identifying information items throughout the community in order to provide for more efficient management of flow, processing, and filing. A standard item identification system combined with a standard coding system would constitute a significant first step in inter-system compatibility and data exchange on a community scale. (See Section I, B, 2, Volume I)

j. System Identification

There is evident a great need to develop in detail the specifications of the intelligence information processing problems to be solved as a basis for applied research and systems engineering directed at entirely new EDP solutions. The SCIPS Field Survey System is one of the best tools thus far developed to assist in such an undertaking. (See Section I, B, 4, Volume I).

S-E-C-R-E-T

S-E-C-R-E-T

- 18 -

Selected Special Problems

- k. In the course of their broad systems studies, SCIPS also undertook certain vertical analyses on a problem basis in special areas that seemed to offer fruitful opportunities for improved operations. Among these were foreign publications, biographic reporting, and photographic interpretation. For example, they have pointed to significant advantages that would accrue from the establishment of a central bibliographic reference system for foreign publications, while leaving exploitation in this field on a decentralized basis as at present. In the biographic field mutual sharing of certain types of information and processing techniques might prove to be profitable. Photographic intelligence is cited as an activity which would lend itself to standardization of report forms and of selected procedures throughout the community. (See Appendix F, Volume II; Section III, B.5, Volume II; and Appendix H, Volume VI)

RELATION OF SCIPS FINDINGS TO CURRENT UNDERTAKINGS

16. There remains the need to ascertain what impact the present findings should have upon steps recently taken by the Intelligence Community to accelerate the search for solutions to critical information processing problems.

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- 19 -

17. In his report* to the Special Assistant to the President for National Security Affairs, the DCI on 9 September stated that USIB would:

"a. Consider the feasibility of establishing a national service of common concern to centrally index all documents now being processed on a decentralized basis. The index data so developed would be available to all the members of the Community.

"b. Consider organizing a small permanent group of technical experts from within the Community whose sole responsibility would be to concentrate on technical information processing problems in the Community.

Further, that the "USIB will undertake to accelerate external research in perfecting the art of processing language automatically."

18. The SCIPS Report is not directly responsive to the question of a central documents indexing activity, but such findings as do relate to this question suggest that other problems may be more pressing (e.g., biographic intelligence, and

*See: CODIB-D-107/4, 16 Sept 63, paras. 6 and 7
CODIB-D-56/1, 14 Oct 63
CODIB-D-107/5, 18 Oct 63

S-E-C-R-E-T

- 20 -

open publications referred to on page 18 above). Action on this matter should therefore continue to be deferred.*

19. The proposal to organize a small permanent group of technical experts from within the Community is similar to the SCIPS recommendation that either a Systems Coordination Staff or a Community Operations Research Center be created. What needs yet to be determined is what each USIB member agency would wish such an organization to accomplish that could not be accomplished without creating new machinery. ~~Hence CODIB is again suggesting deferral of this matter until the SCIPS Report has been thoroughly analyzed by each agency.~~ In any event, experience indicates that the establishment of a competent permanent staff might take years. CODIB, therefore, proposes to establish ad hoc groups, supported by a full time secretariat, to tackle the major problems identified by SCIPS.

20. As to steps taken to accelerate research in the art of processing non-numerical data automatically, General Carter awaits a reply to his letter

* DIA would replace this paragraph with the following:

The SCIPS Report is directly responsive to the question of a central document indexing activity. The finding that a single deep indexing system is unobtainable is directly relevant to the question. In addition, it was the consensus of the SCIPS group that such a central indexing activity is both unnecessary and unwise. This proposal should be dropped from further consideration.

- 21 -

25X1 of 17 October to [] for his views on how best to proceed inasmuch as this matter is of concern to the entire Government.

21. The SCIPS Report underlines a fact recognized by USIB in authorizing the study; namely, that USIB will in the future find it necessary to devote more attention to the information processing portion of the intelligence cycle than has hitherto been the case.

22. Cost considerations: The immediate cost implication of the following recommendations is limited to []

25X1 [] Office space would be required and best provided either in CIA or DIA Headquarters, or, perhaps, at a midway point such as [] Additional costs not estimable in any firm sense now would include the part-time services of departmental representatives on ad hoc groups such as those suggested in Recommendation 3 below. Long range costs of stimulating standardization of processes or equipment compatibility are impossible to forecast, but a corollary purpose in developing a Community approach toward information processing is the introduction of economies, particularly in research and development and large-scale computer-based systems design.

S-E-C-R-E-T

- 22 -

RECOMMENDATIONS

It is recommended that USIB

1. Note the general findings and conclusions of the SCIPS Stage I Study;
2. Request the several member agencies to study the detailed findings as set forth in the six volumes of the report, plus the SCIPS data base, with a view to relating these findings to their own processing problems;
3. Direct CODIB to establish ad hoc groups reporting directly to it to:
 - a. Develop the community coordinated content control code.
 - b. Develop and publish a standard item list.
 - c. Develop and implement standardized item description lists.
 - d. Develop a standard installation description format.
 - e. Develop a community coordinated R&D program in the areas of non-numerical data processing, associative memories, and machine translation.
 - f. Develop a biographic intelligence processing plan.
 - g. Develop a coordinated plan for processing bibliographic data on foreign publications.
 - h. Develop proposals for improved analyst-to-analyst communication.
4. Adopt Explore the feasibility of adopting the recently developed DoD standard photographic chip as a standard for the Intelligence Community.

S-E-C-R-E-T

- 23 -

5. Extend USIB-S-13.1/4, subject: Automatic Data Processing, dated 24 May 1963, to cover the development of a data files and systems library and the exchange of files for all types of intelligence data.

6. Direct CODIB to continue the Director, SCIPS, and a small staff (CIA-2; DIA-2) on duty to:

- a. Provide referral service from the SCIPS Data Base;
- b. Prepare for CODIB consideration additional guidelines for the further development and implementation of procedures for improving information processing in the Intelligence Community;
- c. Review the SCIPS data on hand to evaluate the success of present storage and retrieval systems by types of system and agency;
- d. Develop for CODIB consideration a workable policy on responsibility of agency reference facilities as community resources;
- e. Assist the ad hoc groups.

7. Authorize the release of this CODIB Report and the SCIPS Report to the President's Foreign Intelligence Advisory Board, pursuant to Mr. Coyne's request therefor of 30 September 1963.

Paul A. Borel
Chairman